

REMARKS

This amendment and these remarks are responsive to the Office action dated March 10, 2003. Claims 1-31 are pending in the application. In the Office action, claims 28-31 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,729,631 to Takahashi et al. Claims 1-31 are rejected under 35 U.S.C. § 103(a) as obvious over Takahashi in view of U.S. Patent No. 4,066,332 to Kato et al. Claim 9 is rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Information Disclosure Statement is rejected as failing to comply with 37 C.F.R. § 1.98(a)(1), and the drawings are rejected as not showing all elements of the claims.

First, the Information Disclosure Statement (IDS) filed on February 13, 2002 contains a list of all patents, publications, applications or other information submitted for consideration by the Office in compliance with 37 C.F.R. § 1.98(a)(1). In particular, the IDS listed JP11-305337 as a foreign patent document submitted for consideration. Applicants believe that copies of the Japanese patent and English language abstract were submitted with the IDS. However, to expedite prosecution of the application, applicants re-submit the IDS herewith, along with copies of the Japanese patent and English language abstract.

Turning next to the drawings, applicants respectfully traverse the assertion that the drawings do not show a “lens positioned adjacent the reflective surface.” Such a lens is shown at reference number 334 in Fig. 8, and is described in the specification beginning at page 18, line 13. Therefore, applicants believe that all features of claim 4 are shown in the drawings. Claim 5 has been cancelled without prejudice.

Next, applicants respectfully traverse the rejection of claim 9 under § 112, ¶ 2. The phrase “wherein the image source is positioned outside of the casing” is asserted to be indefinite, for the reason that a rear projection display system, by definition, uses a translucent screen onto which an image is projected from the back side.” However, the claimed feature is shown in Fig. 7 and described in the specification beginning at page 13, line 18. Applicants believe that the drawing and text description of this feature are sufficiently clear for the claim to be in compliance with the requirements of 35 U.S.C. § 112, and respectfully request reconsideration of this claim.

Rejections under 35 USC § 102

Turning next to the § 102 prior art rejections, applicants respectfully traverse the rejection of claim 28 as anticipated by Takahashi. Claim 28 includes the elements of (1) an image source, (2) a rear reflective surface, and (3) a screen including (4) a lens array and (5) a mirror array positioned adjacent the lens array, wherein the lens array includes (6) a plurality of lenses.

In contrast, Takahashi does not disclose a rear projection display system having all of the elements of claim 28. The rejection states that Takahashi discloses in Fig. 16b “a rear reflective surface (M), a screen (S) including a lens array (column 7, lines 25-26) and a mirror array (M) positioned adjacent the lens array.” However, the part “M” asserted to be the mirror array is the same part asserted to be the rear reflective surface. Moreover, part “M” is not included in the screen, as is the mirror array of claim 1. Instead, part “M” is positioned opposite the screen to reflect light toward the screen. Therefore, for at least this reason, claim 28 is not anticipated by Takahashi, and is in condition for allowance.

Next, applicant also respectfully traverses the rejection of claims 29-31 as anticipated by Takahashi. However, to expedite allowance, claim 29 has been amended to recite a rear projection video system including a housing, an image source, a rear reflective surface, a screen configured to display an image to a viewer, and an internal reflection element including a material of a higher index of refraction than the screen filling a space between the rear reflective surface and the screen. Claims 30 and 31 have been cancelled without prejudice.

In contrast Takahashi does not disclose a rear projection video system having internal reflection element including a material of a higher index of refraction than the screen filling the housing between the rear reflective surface and the screen. Thus, amended claim 29 is not anticipated by Takahashi, and is in condition for allowance.

Rejections under 35 USC § 103

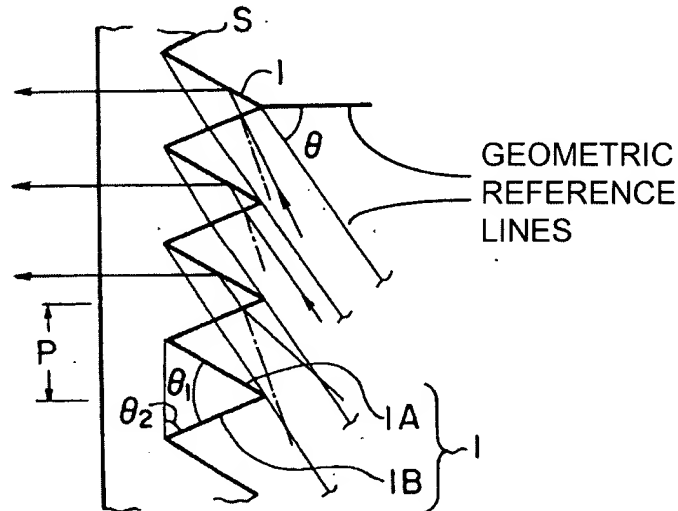
Applicants respectfully traverse the rejection of claim 1 as obvious over Takahashi in view of Kato. For claim 1 to be obvious over a combination of these references, each element of claim 1 must be either disclosed or suggested by the combination of references. Claim 1 is not obvious over these references because these references cannot be combined to produce a rear projection display system having all of the elements of claim 1.

Claim 1 recites a rear projection display system including an image source, a rear reflector, and a screen configured to display the projected image, wherein the screen includes a plurality of angularly discriminating reflective elements configured to reflect light incident on the screen from a first angle toward the rear reflector, and to allow light

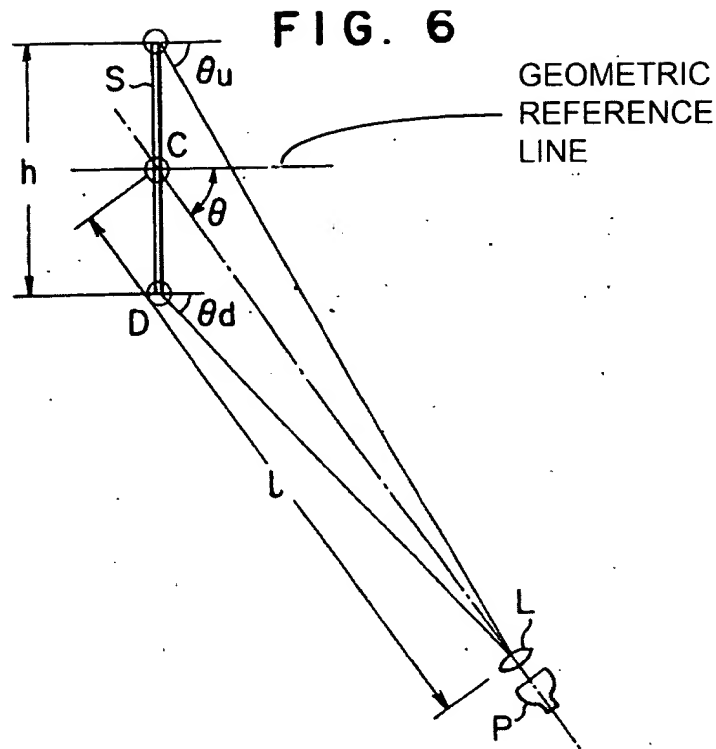
incident on the screen from a second angle to be transmitted through the screen for display.

In contrast, Takahashi discloses a rear projection screen apparatus having a screen with a plurality of elongated prisms on its inside surface. The prisms are configured to reflect incident light for transmission by the screen, and thus toward a viewer rather than toward a rear reflector. This is shown in each of Figs. 3, 4, and 6-8 of Takahashi, and is described in the Abstract. While some figures of Takahashi may have lines that appear to show light reflected from the screen toward a rear reflector, these lines are actually geometric reference lines, rather than rays representing a path of light. Figs. 3 and 6 from Takahashi are reproduced below to clarify this point.

FIG. 3



Takahashi, Fig. 3



Takahashi, Fig. 6

Likewise, Kato also does not disclose or suggest reflecting light incident on the screen from a first angle toward the rear reflector for reflection back toward the screen. Kato discloses a rear projection screen having a plurality of louvers embedded in a light diffusion material. All light incident on the screen is either transmitted through the screen or absorbed by the louvers. None is disclosed as being reflected back toward a rear reflector. Because neither Kato nor Takahashi discloses nor suggests a plurality of angularly discriminating reflective elements configured to reflect light incident on the screen from a first angle toward the rear reflector, these references can not be combined to produce a rear projection display system having all of the elements of claim 1. Claim 1 is therefore not obvious over these references, and is in condition for allowance.

Moreover, claims 2-15 depend from and include all of the elements of claim 1, and are thus also not obvious over Takahashi in view of Kato.

Next, claim 16 has been amended to recite a rear projection display system including an image source configured to project an image, a rear reflector disposed adjacent the back side of the display system, and a selectively reflective screen disposed adjacent the front side of the display system, the screen including a plurality of reflective elements configured to reflect light incident on the screen from an upwardly direction toward the rear reflector and to transmit light incident on the screen from a downwardly direction between the reflective elements.

In contrast, no combination of Takahashi or Kato discloses a rear projection display system having all of the elements of amended claim 16. As described above for claim 1, neither of these references discloses or suggests a screen that reflects incident light toward a rear reflector. Furthermore, neither reference discloses or suggests a screen that reflects light incident on the screen from an upwardly direction toward a rear reflector. Thus, amended claim 16 is not obvious over any combination of Takahashi in view of Kato, and is in condition for allowance. Furthermore, claims 17 and 19-22 depend from and include all of the elements of amended claim 16, and are thus also in condition for allowance.

Next, claim 24 has been amended to recite a rear projection display system including a screen, an image source configured to project an image, and a rear reflective surface configured to reflect light from the image source onto the screen. The screen includes a plurality of generally planar, spaced-apart reflective elements oriented with

respect to a vertical plane of the screen such that incident light from the image source is first reflected from the reflective elements toward the rear reflective surface and then reflected from the rear reflective surface toward the screen for transmission between the reflective elements.

In contrast, neither of Takahashi nor Kato discloses a rear projection system having all of the elements of amended claim 24. As described above, none of the screens disclosed in Takahashi and Kato reflect light toward a rear reflective surface. Thus, these references cannot be combined to produce a rear projection display system having all of the elements of amended claim 24. For this reason, amended claim 24 is not obvious over these references, and is in condition for allowance. Furthermore, claims 25-27 depend from and include all of the elements of claim 24, and thus are also in condition for allowance.

Applicant respectfully traverses the rejection of claim 28 as obvious over Takahashi in view of Kato. Claim 28 recites a rear projection display system having an image source, a rear reflective surface, and a screen. The screen includes a lens array and a mirror array positioned adjacent the lens array, wherein the lens array includes a plurality of lenses configured to direct light incident on the screen from a first angle onto the mirror array to be reflected toward the rear reflective surface, and wherein the screen is configured to direct incident light from a second angle through the mirror array for display to a viewer.

In contrast, neither Takahashi nor Kato discloses a screen including a mirror array and a lens array. The screen of Takahashi includes a plurality of prisms, but does not

include a mirror array. Moreover, the prisms of Takahashi are not configured to direct incident light onto a mirror array for reflection toward a rear reflective surface, but are instead configured to redirect light from a steep angle to an angle normal to the screen surface for transmission toward a viewer. Likewise, the screen of Kato includes a light diffusion layer containing a plurality of louvers. However, neither the light diffusion layer nor the louvers is configured to direct incident light onto a mirror array included in the screen for reflection toward a rear reflective surface. Instead, the light diffusion layer is configured to transmit incident light in such a manner as to reduce scintillation. Thus, because Takahashi and Kato cannot be combined to produce a screen including a mirror array and a lens array, claim 28 is not obvious over Takahashi in view of Kato, and is in condition for allowance.

Finally, claim 29 has been amended to recite a rear projection video system, including an image source, a rear reflective surface, a screen configured to display an image to a viewer, wherein the screen is separated from the rear reflective surface by a space, and an internal reflection element including a material of a higher index of refraction than the screen filling the space between the rear reflective surface and the screen. Claims 30 and 31 are cancelled without prejudice.

In contrast, neither Takahashi nor Kato discloses a rear projection system having a space between a screen and rear reflector filled by a material of a higher index of refraction than the screen. Furthermore, neither reference even mentions the use of materials of different indices of refraction to obtain desired screen reflectance characteristics. Because neither of these references discloses or suggests this element of

claim 29, these references cannot be combined to produce all of the limitations of claim 29. For this reason, claim 29 is not obvious over Takahashi in view of Kato, and is thus in condition for allowance.

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, applicants respectfully request that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

CERTIFICATE OF MAILING

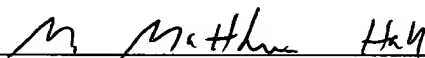
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on June 25, 2003.


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Respectfully submitted,

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